WHAT IS CLAIMED IS:

1. An ink jet recording apparatus using a recording head having a plurality of discharge apertures and a plurality of recording elements corresponding to the discharge apertures and discharging ink from the discharge apertures onto a recording medium by application of a drive signal to the recording elements, the ink jet recording apparatus comprising:

driving means for dividing the plurality of recording elements among a plurality of blocks such that each block includes a predetermined number of recording elements and for sequentially driving each one of the blocks so as to discharge ink within a discharge cycle; and

adjusting means for adjusting the drive signal applied to the recording elements based on the number of recording elements to be driven within the discharge cycle and the number of recording elements contained in each of the blocks sequentially driven by said driving means.

2. The ink jet recording apparatus according to claim 1, wherein the adjusting means comprises:

first calculating means for calculating a number of recording elements to be driven in the

discharge cycle; and

second calculating means for calculating a number of recording elements to be driven in each one of the plurality of blocks,

wherein said adjusting means changing a pulsewidth of a drive pulse signal applied to the recording element of the recording head based on values calculated by said first calculating means and said second calculating means.

3. The ink jet recording apparatus according to claim 1, wherein each one of the recording elements includes an electrothermal transducer that generates heat when the drive signal is applied thereto, the heat causing a bubble to be generated in the ink.

4. An ink jet recording apparatus having a plurality of discharge apertures arranged in rows in a direction perpendicular to a scanning direction of a recording head carriage of the ink jet recording apparatus and a plurality of recording heads arranged in a direction parallel to the scanning direction for discharging ink from the plurality of discharge apertures by applying a drive signal to recording elements provided corresponding to the discharge apertures

so as to discharge ink from the plurality of recording heads onto a recording medium, the ink jet recording apparatus comprising:

driving means for dividing the plurality of recording elements of each recording head among a plurality of blocks such that each block includes a predetermined number of recording elements and sequentially driving each one of the blocks so as to discharge ink within a discharge cycle; and

adjusting means for adjusting the drive signal applied to the recording elements based on the number of recording elements of each of the recording heads to be driven within the discharge cycle and the number of recording elements contained in each of the blocks sequentially driven by the driving means.

5. The ink jet recording apparatus according to claim 4, wherein the adjusting means comprises:

first calculating means for calculating a number of recording elements of each recording head to be driven in the discharge cycle;

second calculating means for calculating a number of recording elements of each recording head to be driven in each one of the plurality of blocks; and

adding means for adding a value calculated by said first calculating means and a value calculated by said second calculating means for those recording heads that are driven simultaneously,

wherein said adjusting means changes a pulsewidth of a drive pulse signal applied to each of the plurality of recording heads based on values calculated by said first calculating means and said second calculating means.

6. The ink jet recording apparatus according to claim 4, wherein at least one of the plurality of recording heads is driven at a timing different from that of the other recording heads.

7. An ink jet recording method for an ink jet recording apparatus using a recording head having a plurality of discharge apertures and a plurality of recording elements corresponding to the plurality of discharge apertures and for discharging ink from the corresponding plurality of discharge apertures by application of a drive signal to the recording elements to discharge ink from the recording head onto a recording medium, the ink jet recording method comprising the steps

of:

dividing the plurality of recording elements among a plurality of blocks such that each block includes a predetermined number of recording elements and sequentially driving each one of the blocks so as to discharge ink within a discharge cycle; and

adjusting the drive signal applied to the recording elements based on the number of recording elements to be driven within the discharge cycle and the number of recording elements contained in each of the blocks sequentially driven by the driving means.

8. The ink jet recording method according to claim 7, wherein said step of adjusting the drive signal comprises the steps of:

calculating the number of recording elements to be driven within the discharge cycle;

calculating a number of recording elements to be driven in each one of the plurality of blocks; and

changing a pulsewidth of a drive pulse signal applied to the recording element of the recording head based on values calculated by said first calculating means and said second calculating means.

9. An ink jet recording method for an ink jet recording apparatus using a plurality of ink jet recording heads, each having a plurality of discharge apertures arranged in rows in a direction perpendicular to a scanning direction, wherein the plurality of recording heads are arranged in a direction parallel to the scanning direction for discharging ink from the plurality of discharge apertures by applying a drive signal to recording elements provided corresponding to the discharge apertures so as to discharge ink from the plurality of recording heads onto a recording medium, the ink jet recording method comprising:

a division step of dividing the plurality of recording elements of each recording head among a plurality of blocks such that each block includes a predetermined number of recording elements;

a driving step of sequentially driving each one of the blocks so as to discharge ink within a discharge cycle; and

an adjusting step of adjusting the drive signal applied to the recording elements based on the number of recording elements of each of the recording heads to be driven within the discharge

cycle and the number of recording elements contained in each of the blocks sequentially driven at said driving step.

10. The ink jet recording method according to claim 9, wherein said adjusting comprising the steps of:

calculating a first number of recording elements of each recording head to be driven in the discharge cycle;

calculating a second number of recording elements of each recording head to be driven in each one of the plurality of blocks; and

adding the first number and the second number together for those recording heads that are driven simultaneously; and

changing a pulsewidth of a drive pulse signal applied to each one of the plurality of recording heads based on a sum obtained in said adding step.

11. The ink jet recording method according to claim 9, wherein at least one of the plurality of recording heads is driven at a timing different from that of the other recording heads.

12. A recording apparatus that records

using a recording head having a plurality of recording elements, the recording apparatus comprising:

power supply means for supplying to the recording head a drive current for driving the plurality of recording elements;

electrical charge storage means provided on a drive current supply path between the power supply means and the recording head;

first evaluation means for estimating a voltage drop amount across a first section of the drive current path between said power supply means and said electrical charge storage means;

second evaluation means for estimating a voltage drop amount across a second section of the drive current path between said electrical charge storage means and the recording head; and

control means for controlling a pulsewidth of the drive current used to drive the recording elements based on the voltage drop amount estimated by the first evaluation means and second evaluation means.

13. The recording apparatus according to claim 12, wherein a change over time of the drive current in the first section is relatively small and a change over time of the drive current in

the second section is relatively large.

14. The recording apparatus according to claim 12, wherein said first evaluation means comprises:

first counting means for counting a number of recording dots recorded by the recording head in a recording of a predetermined period; and

first discriminating means for determining an amount of a drop in voltage in the first section based on the count value counted by said first counting means.

15. The recording apparatus according to claim 14, wherein the predetermined period is a time period that stores electric power required for a recording operation of the recording head using a charge stored in said electrical charge storage means.

16. The recording apparatus according to claim 14, wherein said first discriminating means determines the voltage drop amount using a Look-Up Table (LUT).

17. The recording apparatus according to claim 12, wherein the second evaluation means

comprises:

second counting means for counting a number of recording elements to be driven simultaneously during a recording operation of the recording head; and

second discriminating means for determining an amount of a drop in voltage in the second section based on the count value counted by said second counting means.

18. The recording apparatus according to claim 17, wherein said second discriminating means determines the voltage drop amount using a Look-Up Table (LUT).

19. The recording apparatus according to claim 12, wherein the recording head is provided with a non-volatile memory that stores property information specific to the recording head.

20. The recording apparatus according to claim 19, wherein said first evaluation means and said second evaluation means estimate the voltage drop amount by referencing respective corresponding LUTs based on the property information stored in the nonvolatile memory of the recording head.

21. The recording apparatus according to claim 12, wherein the control means comprises:

third evaluation means for estimating a voltage drop amount over the entire drive current supply path from a voltage drop amount over the first section and the second section of the drive current supply path estimated by said first evaluation means and said second evaluation means; and

determining means for determining an amount by which a pulsewidth is to be adjusted, based on results from said third evaluation means.

22. The recording apparatus according to claim 12, wherein the recording head is an ink jet recording head.

23. The recording apparatus according to claim 22, wherein the ink jet recording head is a recording head for performing color recording, the ink jet recording head comprising:

first chip equipped with a group of recording elements for discharging yellow ink;

second chip equipped with a group of recording elements for discharging magenta ink;

third chip equipped with a group of

recording elements for discharging cyan ink; and

fourth chip equipped with a group of recording elements for discharging black ink.

24. The recording apparatus according to claim 23, wherein the drive current supply path includes a joint section corresponding to the first through fourth chips inclusive as well as specific sections that are specific to each of the first through fourth chips, respectively; and

said first evaluation means estimates a voltage drop across the joint section and each one of the specific sections, respectively.

25. The recording apparatus according to claim 12, wherein the ink jet recording head is provided with a sub-heater to maintain head temperature.

26. The recording apparatus according to claim 25, wherein the sub-heater comprises:

determination means for determining whether the sub-heater is driven or not; and

fourth evaluation means for estimating a voltage drop amount due to driving of the sub-heater according to results from said determination means,

wherein said control means further controls the pulsewidth of the drive current by taking into account the voltage drop amount estimated by said fourth evaluation means.

27. A recording control method, comprising:

a first evaluation step for estimating a voltage drop amount across a first section of the drive current supply path provided with an electrical charge storage unit disposed between an electric power supply unit and a recording head, wherein the first section is defined between the electrical power supply unit and the electrical charge storage unit;

a second evaluation step for estimating a voltage drop amount across a second section of the drive current supply path, between the electrical charge storage unit and the recording head; and

a control step for controlling a pulsewidth of the drive current based on a voltage drop amount estimated in said first evaluation step and said second evaluation step.

28. The recording control method according to claim 27, wherein said first evaluation step comprises:

a first counting step for counting a number of recording dots recorded by the recording head upon recording of a predetermined period; and

a first discriminating step for determining an amount of a drop in voltage in the first section based on the count value counted at said first counting step.

29. The recording control method according to claim 28, wherein the predetermined period is a period that stores electric power required for a recording operation of the recording head using the electrical charge charged in the electrical charge storage unit.

30. The recording control method according to claim 27, wherein said second evaluation step comprises:

a second counting step for counting a number of recording elements to be driven simultaneously during a recording operation of the recording head; and

a second discriminating step for determining an amount of a drop in voltage in the second section based on the count value counted at said second counting step.

31. The recording control method according to claim 27, wherein said control step comprises:

a third evaluation step for estimating a voltage drop amount over the entire drive current supply path from a voltage drop amount over the first section and the second section of the drive current supply path estimated at said first evaluation step said the second evaluation step, respectively; and

a determination step of determining an amount by which a pulsewidth is to be adjusted, based on results estimated at said third evaluation step.

32. The recording control method according to claim 27, wherein the recording head is a color ink jet recording head, the recording head comprising:

first chip equipped with a group of recording elements for discharging yellow ink;

second chip equipped with a group of recording elements for discharging magenta ink;

third chip equipped with a group of recording elements for discharging cyan ink; and

fourth chip equipped with a group of recording elements for discharging black ink,

wherein the drive current supply path

includes a joint section corresponding to the first through fourth chips inclusive as well as specific sections that are specific to each of the first through fourth chips, respectively, and in said first evaluation step, a voltage drop across the joint section and each one of the specific sections is estimated, respectively.

33. The recording method according to claim 27, wherein the recording head is an ink jet recording head equipped with a sub heater for maintaining the head temperature, the recording method further comprising:

a determination step for determining whether the sub heater has been driven; and

a fourth evaluation means for estimating a voltage drop amount due to driving of the sub-heater, according to results determined at said determination step,

wherein in said control step, the pulsewidth of the drive current is further controlled by taking into account the voltage drop amount estimated at said fourth evaluation step.